

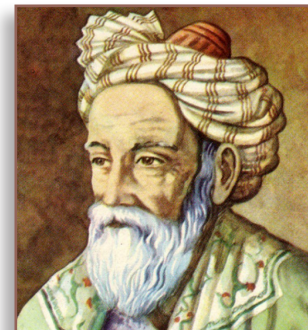
GEOMETRY

“The knowledge of which geometry aims is the knowledge of eternal”
– Plato

4

Omar Khayyam was a Persian mathematician, astronomer and poet. As a poet, his classic work Rubaiyat attained world fame.

Khayyam's work is an effort to unify Algebra and Geometry. Khayyam's work can be considered the first systematic study and the first exact method of solving cubic equations. He accomplished this task using Geometry. His efforts in trying to generalize the principles of Geometry provided by Euclid, inspired many European mathematicians to the eventual discovery of non-Euclidean Geometry. Khayyam was a perfect example of being a notable scientist and a great poet, an achievement which many do not possess.



Omar Khayyam
(18.5.1048 – 4.12.1131)



Learning Outcomes

- To recall congruent triangles and understand the definition of similar triangles.
- To understand the properties and construction of similar triangles and apply them to solve problems.
- To prove basic proportionality theorem, angle bisector theorem and study their applications and study the construction of triangles under given conditions.
- To prove Pythagoras theorem and study its applications.
- To understand the concept of tangent to a circle and study construction of tangent to circle.
- To understand and apply concurrency theorems.



4.1 Introduction

The study of Geometry is concerned with knowing properties of various shapes and structures. Arithmetic and Geometry were considered to be the two oldest branches of mathematics. Greeks held Geometry in high esteem and used its properties to discuss various scientific principles which otherwise would have been impossible. Eratosthenes used the similarity of circle to determine the circumference of the Earth, distances of the moon and the sun from the Earth, to a remarkable accuracy. Apart from these achievements, similarity is used to find width of rivers, height of trees and much more.